

## THE SUMMIT FLORA OF KING'S MOUNTAIN AND CROWDER'S MOUNTAIN, NORTH CAROLINA

BY JOHN K. SMALL

A few miles north of the southern boundary of North Carolina and many miles east of the Appalachian Mountain system, is an irregular ridge with a northeasterly and southwesterly trend. From most adjacent points this ridge is not conspicuous ; in fact, it might be passed unobserved were it not for the two peaks which rise abruptly near its northeastern extremity. These peaks are known as King's Mountain and Crowder's Mountain.

The geology of the region in question is quite similar to that of the nearest portion of the Blue Ridge, while neither peak reaches an altitude of quite 1,800 feet. The top of King's Mountain is a little higher above the level of the sea than that of Crowder's Mountain.

I have visited this locality several times and have found interesting, rare and undescribed species ; but it is the character of the vegetation inhabiting the summits that especially impresses one.

The summits of both mountains are small and very rugged ; that of Crowder's is somewhat larger and less rugged than that of King's Mountain. On ascending the slopes of either mountain two striking features arrest the eye. They are the prevalence of a very local species which has taken the name of one of the mountains, namely *Lacinaria Regimontis*, and of the relatively rare fern, *Asplenium Bradleyi*. The main peculiarity in connection with this fern there, is that it does not confine itself to its favorite habitat, namely, overhanging cliffs ; but it is, or it was up to the time I last visited the locality, very common and grew nearly everywhere, on cliffs, on ledges, on and about boulders and in loose soil.

The vegetation of the summits is almost exclusively of woody plants, and shrubby. The shrubby condition of normally large forest trees presents an extraordinary and interesting aspect. The chestnut tree, *Castanea dentata*, ranges from three to six

feet in height, nevertheless these plants produce an abundance of fruit. *Sassafras*, *Pinus Virginiana*, *Quercus Prinus*, *Diospyros* and *Oxydendrum*, all appear in the same form and stature. The common sour gum, *Nyssa sylvatica*, in like condition, exists on King's Mountain, and a single shrub of *Ilex opaca* was found on the uppermost cliffs of Crowder's Mountain.

The normally shrubby plants appear more natural. *Polycodium stamineum*, *Vaccinium vacillans* and *Quercus nana* are common to both peaks, while *Kalmia latifolia*, *Rhododendron Catawbiense*, *Gaylussacia frondosa*, *Gaylussacia resinosa* and *Batodendron arboreum* are species apparently confined to the top of King's Mountain. Only two perennial or shrubby herbs, namely *Galax aphylla* and *Paronychia argyrocoma*, exist on the summit of King's Mountain, while the summit of Crowder's Mountain is destitute of herbaceous vegetation with the exception of a fern and a few sterile plants of some sedge.

## A SIMPLE DYNAMOMETER

By H. M. RICHARDS

It is instructive to demonstrate that force is exerted by the swelling of seeds previous to germination, or, for that matter, in the imbibition of water by any substance capable of taking it up. A very simple machine for registering approximately the amount of energy involved, which perhaps may be dignified by the name of a dynamometer, is found in one of the ordinary self-registering letter scales which work by compression. A dish containing the seeds is placed on the pan of the scale, and on top of them is laid a cork, or better a glass plate, which just fits into the glass vessel without binding. The whole is placed on a retort stand and a stick, held firmly by a clamp, is placed against the glass plate. Water is now poured on, and as it runs down among the seeds they swell, and the glass cover being rigid the scale itself is depressed as a result of the pressure. It is needless to say that the weight of the dish, seeds, etc., must first be recorded. In this way an idea of the amount of force exerted by a given weight of